Soil Characterization Site Exposure – Near Surface Method

Field Guide

Task

Expose the top 10 cm of soil for soil characterization measurements and define the site.

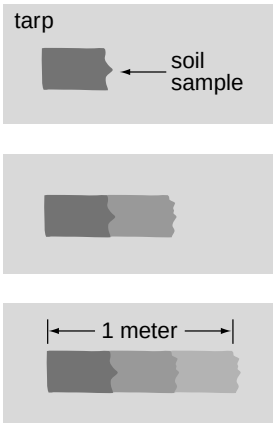
What You Need

- ❑ Meter Stick or metric ruler
- ❑ Local information about your site
- ❑ GPS receiver
- ❑ Clinometer
- ❑ Compass
- ❑ *Soil Characterization Site Definition Sheet*

In the Field

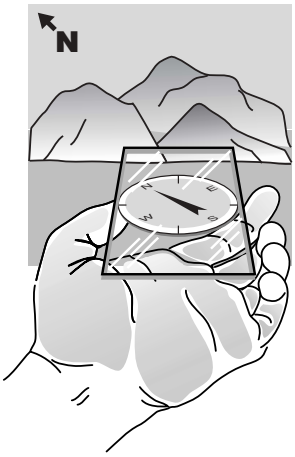
Exposing the Soil Profile

1. Identify a location where the surface of the soil can be exposed.
2. Remove the surface vegetation.
3. Use a garden trowel or shovel to carefully remove the top 10 cm of soil from a small area and set it on the ground.
4. Treat this sample as a horizon.



Defining the Soil Characterization Site

1. Give the site a name or number (e.g., SCS-01). Record this on the *Soil Characterization Site Definition Sheet*.
2. Measure the latitude, longitude, and elevation of the site using the *GPS Protocol*. Record this information on the *Site Definition Sheet*.
3. Identify the steepest slope that crosses the area of exposed soil.
   a. Two students (A and B) are needed whose eyes are at about the same height to measure the slope. One other student (C) is needed to be the "reader" and "recorder".
   b. Student A holds the clinometer and stands down slope while student B walks to the opposite side of the hole. Students A and B should be about 30 m apart (or as far apart as easily possible). Student C should stand next to student A.
   c. Looking through the clinometer, Student A sites the eye level of Student B. Student C reads the angle of slope on the clinometer in degrees, and records this reading on the *Site Definition Sheet*.



4. Identify the aspect of the steepest slope:
   a. Face up the steepest slope across the exposed soil area.
   b. Hold the compass in your hand so that the red arrow is lined up with the North position on the compass.
   c. Read the number on the edge of the compass housing (which can range from 0 to 360).
   d. Record this value on the *Site Definition Sheet*.
5. Record "Near Surface" as the method used to expose the soil profile.
6. Record whether the site is on or off school grounds.
7. Record a description of the site location. (Near the Soil Moisture Study Site, Near the Soil Moisture and Atmospheric Study Sites, Near the Atmosphere Study Site, In the Biology Study Site, Other)
8. Describe and record the position on the landscape where the site is found. (Summit, Side Slope, Depression, Large Flat Area, Streambank)
9. Describe and record the cover type of the site (Bare Soil, Rocks, Grass, Shrubs, Trees, or Other).
10. Describe and record the type of parent material from which the soil was formed at the site (Bedrock, Organic Material, Construction Material, Marine, Lake, Stream, Wind, Glaciers, Volcanoes, or Loose materials on slope moved by gravity).
11. Describe and record the land use at the site (urban, agricultural, recreation, wilderness, other)
12. Measure and record the distance (up to 50 m) of the site from major features (e.g., buildings, power poles, roads, etc.).
13. Describe and record any other distinguishing characteristics of this site.